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ABE's ACEs

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If you would like more information about ABE's ACEs, write us at the club's address or call the club HOTLINE listed on the last page.

ABE's ACEs meets the second Saturday of every month at:

NCACC

Keystone Classroom 217/218

LVAUG

Lehigh Valley Atari Users Group

PO Box 1307

Allentown, PA 18105-1307

Meets the first Thursday of every month at:

Lincoln Technical Institute

5151 Tilghmin St.

Allentown, PA 18105

Help!

We Need E-Board Members!

We need people to run for E-Board positions. Chances are, if you run, you will be elected. Only requirement is that you are eighteen in age. What's YOUR excuse?

So, if you can help at all, please contact Paul Grover at the number listed on the back!

The positions are:

President

Club supervisor and coordinator. Runs the meetings with the Vice President.

Vice President

Responsible for demos, guest speakers, etc. If necessary, fills in for the president.

Secretary

Keeps minutes. Keeps club equipment list.

Treasurer

Handles club's finances.

Membership

Keeps track of membership dues, and who the curent members are.

Librarian

Supervises all of the club's libraries.

Newsletter Editor

Produces six newsletters.

Anyone can do these jobs, they just need to be done, so, WHY DON'T YOU RUN?

Superstar Ice Hockey

An Atari ST Review by Joe Souder
(ABE's ACEs)

Superstar Ice Hockey is an ice hockey game that allows the player to be the General Manager, Coach, Center, and Goalie all at one time (except in the case of Goalie and Center, at the beginning of each game, the player selects whether he wants to be the goalie or the center...but more of this later...).

Upon bootup, there are six options: 1. Reset the league. This will reset all of your team's accumulated stats (and all other teams) and then start you over. When started you over, it prompts you with the following: Name of your Team, Division (1 of 4), Games per season (4, 7, or 11), Games per Division Playoffs (1, 3, or 5), per Conference Playoffs (1, 3, or 5), and for the Sport-Time Cup (1, 3, or 5). It then starts you off as an expansion team.

2. View History of league. This option will show you how many seasons the league has been in existence, and the cummulative regular season records of all teams.

3. View a Teams History. This option shows any team's history (Team is selected by pushing up or down on the joystick). It shows in a chart form, the Wins/Losses/Ties of the teams, the Goals For/Against, Division Rank, League rank, and whether you made it to the Finals and won/lost for each season shown.

4. Improve Team. This allows you to do three things: Recruit a player from the Minors, Make a Trade, or General Improvement. This is where your General Managing skills shine through:

Trading Points. A trading point is equal to a player's skill point. For instance, each player no matter what his position has two stats, OFFENSE and DEFENSE. And each is given a rating like 33 and 44 and his total would be 77. He is worth 77 trading points. This type of math is what comes into play when in this section.

Recruiting. When you recruit a player, there is a charge of 4 trading points per skill point to bring a player in from the minor leagues. The player can have as many as 24 skill points. You also get to set his stats, such as 12 offense, or 12 defense. Or if you need an offensive winger, set him at 24 offense and 0 defense. If you want a more offensive but slightly defensive, try 16 and 8, etc.

Make a Trade. On this screen, you will see all the players on the

team that you select. Then, you hit the joystick button when you are over the player that you want to trade. Then hit the button when over the player you want. You will then be asked to offer some trading points as extra incentive. The Sport-Time Association (STA) will then decide if the trade can be done.

Hint: If you trade with the first place team, you are more likely to get the trade, because the STA is meant to make the league more competitive.

General Improvement. This will prompt you to give so many credits to your team for training camp. The more you give, the more your team will improve.

5. Setup New Lines. This will allow you to set up the 3 lines that you can have on your team to keep your men fresh during the game. You can also use this to set up the most offensive lines/defensive lines/etc. For example, if your 15 men are like this:

Player	Pos.	Off.	Def.	Tot.
Acton	C	40	10	50
Sutter	C	32	30	62
Bullard	C	39	20	69
Tocchet	F	49	15	64
Kerr	F	45	20	65
Secord	F	20	20	40
Lemieux	F	42	24	66
Gretzky	F	78	21	99
Propp	F	50	22	72
Chychrun	D	25	29	54
Wells	D	15	35	50
Murphy	D	29	30	59
Howe	D	34	37	71
Carkner	D	20	30	50
Samuelsson	D	12	32	44

Pos: F (forward/winger) D (defensemen) C (center)

Off: Offense Def: Defense Tot: Total

If you wanted an offensive set, a defensive set, and a rest of 'em set, you would do it this way (each line must have 1 center, 2 forwards, and 2 defenseman).

Offensive set (Total: 231 120 351) Acton 40 10 50, Gretzky 78 21 99, Propp 50 22 72, Murphy 29 30 59, and Howe 34 37 71.

Defensive set (Total: 146 141 287) Sutter 32 30 62, Lemieux 42 24 66, Kerr 45 20 65, Wells 15 35 50, and Samuelsson 12 32 44.

Rest of 'em (Total: 153 114 267) Bullard 39 20 59, Tocchet 49 15 64, Secord 20 20 40, Chychrun 25 29 54, and Carkner 20 30 50.

6. Play Next Game. This is the video game part of it. When you select this, you are presented with a game menu, in which you can change many things:

League/Practice - The two modes of playing the hockey game.

Offsides - This is a penalty that you can turn on or off. If above is set to league, it is always yes. If it is a practice game, then it can be set to off or on.

Minutes/Period - Allows you to set the minutes per period. It can be anywhere between 5 and 20 inclusive.

Men on Ice - In league play this is always six. The count includes the goalie. In practice, it can be set to two, four, or the normal six.

Team Colors - allows you to set the color for each team.

Controls - This allows you to set the controls for the Coach, Goalie, and Center. These can be set to Joystick 1, Joystick 2, or Computer. However, you can not have the Goalie and Center controlled by the same thing unless it is the computer. In other words, Joystick 1 can not be used for both the Center and the Goalie. In the league game, the opponent is always controlled by the computer. In practice, following the above rules, anything can be set up. Player against Player, Player and Player against computer, Computer Player and Player vs Computer, etc.

To control the goalie, you move left, right, up, and down. Pushing the button and pushing down will cause the goalie to dive and block the puck if it's on the ground. It also does a kick save. Pushing up and the button will cause you to catch the puck (glove save). To control the center, you move up, down, left, and right. To pass, hit the button for a second, and push the joystick in a direction. If you hold the button down longer, you will shoot.

Penalties. There are 3 penalties, and the offsides call. The three penalties are Cross Checking, Slashing and Roughing. Depending on where you hit the guy with the stick. Sometimes you will get away with hitting the guy, and the guy you hit will land on his ear, and for about 15 seconds, you will have a 4 on 5 situation. The penalty time if caught, however, is 6 seconds per the minutes per period. For example, if there is 5 minutes per period, you will be in the penalty box for 30 seconds.

The only problem with the game is that there are two ways to always win. First, is to get the goalie from the first season's SHL champion. The other, I will not tell (Hint: It is in the other aspect of the game)..

If you like the sport of ice hockey, and don't mind winning often after a while, there's no way you can not enjoy this game!

Everything You Always Wanted To Know About Floppies

A Tutorial by Ted Jensen (Originally from ARTICLES, "The KAY*FOG On-Line Magazine") via The ACORN Kernel, 8/88

Typed In by Jace Gill (ABE's ACEs)

So you've just spent 400 bucks for that super piece of software, made your backup, and are working away with your working copy. Suddenly, while you are working with a relatively unimportant utility program on another disk, your disk goes bad. This is not a major problem. You have a backup somewhere, but it gets you to think about your backups of commercial programs. What happens if they go bad? Should you have made them on some type of premium diskette to guard against that? You scour through catalogs and ads in magazines. There are sources galore for diskettes at all prices, and some of them even have specifications. You run into one spec called "Clipping Level" - the supplier claims that because his disks have been tested to a higher clipping level, they are superior. Should you pay a premium for disks with superior specifications? Will your backups be less likely to fail if you use premium disks? These are difficult questions to answer.

Perhaps an explanation of some of the tests run on disks and what can happen to your backup with time would help you make that decision. You may be interested in considering the tradeoffs of using higher priced disks. As an engineer with years of experience in magnetic recording, I had never heard of the term "clipping level" until it came up in a discussion. In fact, I had never seen a specification sheet in any box or bag of disks I have purchased. However, I did spend a couple of years on a design team for a Winchester drive for personal computers and one of my tasks was the specification and testing of the disks used in those drives.

Clipping Level

Since magnetic media is pretty much the same whether it is tape, diskettes, or hard disks (the major difference being that the material to which the magnetic particles are bonded is mylar for tape and diskettes, and aluminum for the hard disks), it wasn't difficult for me to guess at what was meant by "clipping level." It is unfortunate that these words are used to describe a test performed on diskettes, since they have a different and more widely understood meaning throughout the general electronics industry. In any case, we will have to accept these words, since they are the ones used in the advertisement. In simple terms, your drive uses a "head" to read the information on the disk. You can think of this as being like the needle and pick-up on your phonograph. The head reads the magnetic information previously written on your disk and converts it into an electric signal. This signal is further processed and eventually takes on a form sutiable for transmission to your computer as bits, or bytes, which represent the data.

Signal Variation

The size and shape of the electrical signal developed by the head varies for many reasons. First, it varies as a result of the information written on the disk, and this variation itself represents that information. However, there are other variations which take place due to imperfections in the head or the disk and the mechnical characteristics of the drive. These variations, if large enough, will lead to the electronics in the drive not being able to correctly decode the information, and your computer cannot read the disk. It is, therefore, important to keep these variations (those not part of the data) at a minimum.

Coating Thickness

Magnetic diskettes or tapes are manufactured by bonding magnetic particles to a flexible mylar backing material. Characteristics which affect the performance of the final product include, but are not limited to, the size of the particles, the thickness of the coating, and most important to the subject of "clipping level," the uniformity of the coating. If a tiny part of the disk, the size of a pinhole, does not get coated, the signal level recoverable from that spot is reduced. The level of the signal will be fairly uniform until that "pinhole" passes under the head, at which point it will drop. These are referred to as "drop-outs" in the industry. Furthermore, if the coating thickness varies over the surface of the disk, the amplitude of the signal can vary in a relatively smooth manner as the disk rotates. This is generally not a serious problem, however. Your drive can recover the data by separating these disk related variations from the variations in signal due to the real data, provided that disk related variations are not too large. Typically, a drive might be able to successfully ignore disk related variations which did not reduce the amplitude of the real signal to less than 30% of the normal output. This number also depends on a wide variety of factors, and varies from drive to drive - even the same model from the same manufacturer. Thus, anything one could do to assure that the level of these disk-related variations are held within a specified range should reduce the probablility of errors. The key word is "probability," and more will be said about this later.

Therefore, a disk which is tested to a "clipping level" of 60% is tested to assure that the variations due to the disk are small enough that the signal never drops below 60%. That is, variations are held to a range between 60% and 100%. It follows that the higher the "clipping level," the less variation in signal output and the reduced probablity of a disk error.

Now comes the tough part. How much extra money should you pay for a disk tested to a 60% level as compared to one tested to a 40% level? Would you pay 50% more? Twice as much? Ten times as much? The way I look at it is this: there is a high

probablity that if I buy 25 or 50 Brand X disks and they all work, whatever tests were run on them were probably sufficient to assure me that Brand X disks will always work. I have no way of knowing what "clipping level" disks destined for my drives should be tested at, nor, do I believe, do the manufacturers of floppy disks.

Bottom Line: $$$

Assume I buy 100 disks from each of two sources, SuperDisk and CheapDisk. Assume I pay 40 cents each for the CheapDisks and $2 each for the SuperDisks. Out of all the disks I bought, one SuperDisk won't format and ten CheapDisks won't format. I have ended up paying slightly over $2/disk for the good SuperDisks and about 45 cents each for the good CheapDisks. I still think I got a better buy on the CheapDisks.

Now, what about disk failures in the future? That is, as I use these 90 CheapDisks, are they more likely to fail in the future than the 99 SuperDisks? Well, some would argue with me that in fact they would. But I really don't believe it. Why? The first few times I use any disk, its performance will improve. The surface of the disk is left slightly rough (not on prupose) during the manufacturing procoss and this process pevents good contact between the head and the disk. This poor contact degrades performance on the disk. As the disk is used, the head knocks off some particles of the coating, smoothing the surface and improving the contact area and the performance. In tape recording, in critical applications, new tape is never used without running it through a machine at least once and sometimes several times, for this reason. So, after I have used my CheapDisks several times, I feel more comfortable with them than when they were brand new.

How Long Will They Last?

Finally, what about the really long term? Will CheapDisks retain the information stored on them equally as well as SuperDisks, say over a period of 100 years? Well, here we are dealing with a real unknown. There are no disks around that are a hundred years old. Magnetic recording using media of the type used in disks is only about 40 years old. Archival data that has been around for long periods of time has turned out to be a problem in a number of fields. Ask a librarian about the problems facing the Library of Congress protecting many of its books. There has been some experience with magnetic recording in general that may be of some interest. In tape, such as your audio or video cassettes, or computer tape as used on large mainframes, there is a problem with long term storage known as "print through." The magnetic pattern on the tape representing the information emanates a magnetic field, just as the North and South Poles do. This field is very minute, but still present, and any material susceptible to being magnetized will do so in the presence of a magnetic field. This is true for very weak fields if the material is held still within the field for long periods of time. All tape is susceptible to being magnetized; that is its prime purpose in life.

When wound on a reel, each section of tape is tightly pressed against another one, and it all emanates a field, If the tape is left untouched in this form for several years, a little of the information recorded on each section is transferred to mix with the information on the adjacent section. In audio tapes, one can hear this as a low level background of the same music that played either a few seconds earlier or will play a few seconds later, particularly where a loud passage is immediately followed by a quiet one. Normally, disks have a jacket around them that is fairly thick. Thus, it is unlikely that print through would take place between disks. On double sided disks, however, the magnetic information on one side is pretty close to that on the other side, the distance being in the same range as that previously discussed in the case of tape on a reel. If I were to make a guess at the first cause of long term failure, in the sense of not being able to recover 100% of the material from a floppy, I would guess that "print through" would be the cause.

How Come So Cheap?

There are a lot of reasons SuperDisks sell for more than CheapDisks. They spend more on advertising, packaging, and psossibly corporate headquarters. They sell primarily to companies which avoid buying anything by mail order from some post office box across the country. And, they sell at the price they do because people are willing to pay it, whatever the reason. In fact, if you look into it, you will find that many of the people selling the cheaper disks are buying their raw material from the same source as those selling the expensive versions. The whole thing about mass produced products, whether it is disks, drives, computers, or light bulbs, is that they are produced on a statistical basis. That is, costs are reduced to the point where the probability of a bad one getting to the user is acceptably low. This is simply good business. No company can stay in business if it strives for perfection in a commercial product line. Only government can afford products which have been tested to the level of a space shuttle, and as we found out, even they are not perfect.

Personally, I have always bought the least expensive disks I could find. Furthermore, I buy single sided, single density disks and use them in double sided, double density drives, with no problems. On one occasion, I paid over $25.00 for a box of ten disks. It was a Sunday, I needed them, and they were the ony ones I could find. One of the disks in that box proved to be the first bad disk I ever ran into.

One last comment on probablilities. If the probability of a given disk failing is one in 1,000 under whatever circumstances, the probability of two failing under the same circumstances is one in 1,000 times 1,000, or one in 1,000,000. Anyone for making two 45 cent backups instead of one $2.00 backup?

Author's Note

I have taken some liberties in the preceeding article in the

interests of keeping it from becoming overly technical, but I do not believe these affect the substance of the arguments for purchasing lower cost disks. Also, I was not able to find detailed information on the testing of disks in the literature, so much of the above is based on extending my experience from tape and hard disks to disks. I would appreciate it if anyone having more information on the subject, or finding inaccuracies within the article contact me through KAY*FOG PCBBS (415) 285-2687 or by mail: P.O. Box 324, Redwood City, CA 94062.

FTL Interview

In a recent conference on GEnie (4-12-89) Wayne Holder, the president of FTL Games and Andy Jaros, the designer of "Chaos Strikes Back," answered some questions:

"Chaos Strikes Back" is designed as an "expansion set" for Dungeon Master. This means that CSB will require the original Dungeon Master game to work. CSB is a more complex and difficult scenario than the original DM scenario. While designing it, we assumed that it would require "master" level characters to start. The scenario starts several years after the end of the previous adventure. The scenario is currently under Beta Test and we plan to release it in about 1 month (assuming that there no major problems discovered).

Q: Do you have to have finished DM to use it?

A: No, but it helps. You will start CSB with whatever level characters you have in DM. The more advanced your characters are, the better chance you will have to survive CSB.

Q: How many levels will CSB have? Difficulty??

A: CSB has fewer levels than DM, but each level is at least twice as difficult as any level in DM.

Q: What about copy protection? Will CSB require DM to run? I loved the game but the copy protection caused my drives some serious problems.

A: Yes, it requires DM. CSB works by using a special utility which reads a saved game from DM and, then, creates a new saved game file which can be loaded by DM, but which contains a complete new dungeon and adventure. The CSB expansion, also, comes with a hint utility which cam read your game in process and offer hints which are specific to the problems in front of you. Also, there is another utility which allows you to edit your Champion pictures to customize them. We, also, include a complete set of new pictures which depict how we think the champions would have matured in the years since their first adventure in DM. Also, you are able to upload or download champion portraits to other players.

Q: Are there new monster graphics, as well as new character graphics in CSB?

A: There are no new monsters in CSB, but there are a few new objects. Since CSB was designed as an expansion set it is not able to change the graphics from the original game. However, there were a few objects which we did not use in DM, so we have designed these into the scenario for CSB. New graphics will have to wait for DM II.

Q: Are there any changes to spells/level size?

A: There are no new spells, but they are used in new ways. It's hard for me to say too much about the level sizes without giving too much away, but don't expect to use the same mapping tactics you used in DM. Some of you advanced players know that in DM there is a lot of "optional" stuff which only a persistent player will find. In CSB we've added a few things which we think only VERY advanced players will be able to unravel.

Q: ST Action did a mini review. Are they Beta testers?

A: Sorry, I can't comment on who our Beta Testers are.

Q: Will master-level characters advance more rapidly than in DM?

A: Yes, but there is a catch because as your characters attain higher levels, it becomes harder to advance. Also, there is another catch, which is that the ability to attain higher levels requires even greater challenges. For example, we have one challenge which is going to be a real surprise to players. We call it the "Diabolical Demon Director." It takes up almost half a level by itself.

Q: I've noticed in DM that we could only make potions of some of the things like the poison potion. Will we be able to now create say, the fire bomb potion? And, what was the total number of spells in DM?

A: There are a few restrictions in what we can do in an expansion set. Before I go on let me explain a little about out plans for creating new games. DM is based on a game engine which creates the game world from a game file and a data library whcih contains game graphics and the rules for things

like spells, how creatures move, etc. We will be supplying two types of products: (1) New games, such as DM II, which will contain new creatures, spells, or other new features, and (2) Expansion sets which will build upon existing games using that game's graphics, spells, etc. Expansion Sets are much easier for us to design, we hope to do several for each major new game release.

Q: Since you've been talking about DM II and other NEW games, what kind of time table have you got for release?

A: Well, every time I've opened my big mouth and guessed, I've been wrong, but my "goal" is to introduce several new games each year. We've been shooting for this goal for some time now, but there are always disruptions and distractions which seem to push back our schedules. However, currently we have several new games under simultaneous development. So, the new strategy is to wait and see which of these games will be done first.

Q: I hope I'm not offending you by asking, but do the "distractions" include ports to other machines, or is that a separate staff?

A: Well, actually we don't really "port" our games. The code for DM is the same on the ST, Amiga and Apple IIGS. We have separate staff which recompiles the code for each game and is responsible for testing, but the game is created independent of any particular computer. The greatest distraction is the complexity of planning out how all the games will smoothly advance from scenario to scenario. We've been working to not only design the next game, but also design how that game will flow into the games that follow it. Sometimes, this means we discover a potential problem late in the design process and have to back up on several fronts. It's a little hard to explain and I fear I'm rambling.

Q: What about the new games? Any chance of modem hook-ups?

A: Yes, that's one of those planning "distractions" I was alluding to.

Q: What about sound improvements on DM II or CSB?

A: On the Atari we are a bit limited by RAM space. Sound chews up a lot of it. On the Amiga and IIGS we added stereo and creature movement sounds. We'd like to do this for the Atari, too, and we're looking into ways to do it - perhaps with a special accessory. Also, we are considering going to double sided disks for future scenarios. This would let us expand the graphic detail enormously.

Q: Are there any non-DM type games in development like OIDS?

A: Well, yes, but not soon. We will have a new version of OIDS soon, but for another computer (no names mentioned).

Q: Will CSB "require" all four characters, or can it be done with one all-master, like DM?

A: Anything is possible, but it will not be easy. Perhaps, 4 times harder.

Q: How does CSB resolve the fact that as of the last save we have not yet "defeated" Lord C (while gaining a level doing so)? Or is that part of the game?

A: Well, we screwed up, on that one, planning DM. So, in CSB it only matters that you have a save game with characters as advanced as you want. You could make CSB much harder by starting with novice characters. But, that would probably be suicide.

Q: Can you give us a "teaser" on games that we might be seeing in the future from FTL, using a DM style interface?

A: We know the ST better than any other computer, so we are able to get code working on it faster. As to new games - we have a really interesting "horror" based scenario under development. We're trying to create a game which can scare the pants off of you. It will certainly be our most advanced game yet in the use of sound. Is that enough of a teaser?

Q: Does it matter what version of DM we own? I still have the one with lockpicks; will CSB still run OK?

A: The lockpicks reappear in CSB and are very important to the scenario, but I can't say more.

Q: Are you currently developing, or considering MSDOS machine DM?

A: Yes, we have an MSDOS version under development. It will use EGA or VGA level graphics. In fact, that is my particular specialty. So, if it's late you can blame me.

Q: Thanks, and will CSB be available for ST and Amiga at the same time?

A: I'm not sure at this moment. We have a small glitch in our Amiga development currently.

Q: DM took me about 50 hrs. Will CSB take longer? I had maps and spells.

A: Yes.

Q: Any other types of program being worked on?

A: Yes, several; but, if I say too much, my marketing director and secretary (who have to answer all the calls which beg for information on "when"...) will kill me.

Q: Is RVP still under consideration?

A: RPV was quietly killed.

Q: What is the latest version of DM?

A: The latest version of DM is version 1.2.

Q: Will DM II be a fantasy game or is this the space game with the same interface that we've been hearing about?

A: No, we have a space scenario in development, which is unrelated to DM II.

Q: What is the difference between version 1.1 and version 1.2.

A: Nothing big, really. 1.2 fixes a few cosmetic bugs and removed the lockpicks from the game. However, they still exist in the graphic database.

Q: Can you comment on sales for the various platforms and is the [other machin] for OIDS, in fact the Amiga?

A: Well, it is unfair to compare because the ST version of DM has been out much longer than the Amiga or IIGS versions, but we are very happy with the ST sales. No, the other machine is the Macintosh.

Q: To date, no one has found a spell using the GOR symbol. Will it be used in CSB? In DM II?

A: The GOR symbol is important in CSB, but is not related to a spell.

Q: Do you use magic in a Space Scenario, as a Universal Translator, perhaps?

A: The "spell" menu in DM was designed as a type of language interface. In fact, the full set of symbols which we call the "spell" symbols is much larger.

Q: Simple clarification: 3 Games - CSB, DM II and Space, correct?

A: Oh, right. The only item I can comment on is CSB. There will be a DM II but I can't say more until a later date.

Q: Will you be supporting the 68030 TT?

A: What is the 68030 TT? It's news to me. I can't really comment on stuff on machines I haven't seen. Sorry!

Q: Does the ST use more memory than other machines for sound or were you comparing a 1 Mb Amiga to the 512K ST? As for d/s disks, I'm in favor of it if you offer a solution to the S/S users.

A: It has been our number one priority to include all ST users, especially SS 512K. The ST version of DM just barely fits into 512K and requires every trick we could think of to work. On the Amiga, we tried for at least 4 months to work under 512K, but the Amiga's operating system takes up more RAM than we could spare. So, we decided to introduce stereo sound and at least make good use of the extra RAM. On the Atari, we use 4 bit digitized sound. On the Amiga, we went to full 8 bit digitized sounds. We'd love to support this on the ST, as soon as we can figure out how to do it. For larger games, we've been considering DS disks, with an option to use two SS disks.

Q: Will you release CSB, DM II and the Space game for the Amiga, ST and IIGS?

A: Yes.

Q: Any final remarks?

A: Sure... Thanks to all the people who have supported us and waited patiently for new releases. My only regret is that we can't work faster. FTL almost got out of the game business back when the Atari ST was just a rumor, but we decided to make one last try on this "new" machine. Now, it seems like the best decision we ever made. Thanks again.

JJG/5-14-89

Ask Tim

Typed in by Jace Gill (ABE's ACEs)

Tim Sharpe of CACE (Cascades Atari Computer Enthusiasts - an independent Atari Club near Jackson, Michigan) writes a question/answer column for his Club's newsletter. Here are a two of them for your enjoyment.

QUESTION: I've recently heard a rumor that the large state of Texas is going to be split into to smaller, equal states. One will be called "old Texas" and the other will be called "New Texas." Is there any truth to this rumor?

ANSWER: Hey, read my lips: No New Texas!

QUESTION: Hello. I'm sure that the first time you read this letter you will assume that it is a practical joke. I assure you that it isn't. I am writing to you from the future; specifically, the year 2200 A.D. As you can see, the U.S. Postal Service has gotten much better at delivering mail (but the cost of the postage stamp was outrageous!). I discovered your existence from a copy of a magazine that was found in a time capsule. It's being displayed in an ATARI museum, and although I can't remember the name of the magazine (I think it sounded like a brand of toothpaste), I did manage to get your address. I've got a degree in Computer History, and I just wanted to let you know that ATARI went bankrupt in the year 2001 A.D. It seems ATARI had two major problems that they could not overcome: lack of advertising and not coming through on products that it promised to release. In 1999 they advertised heavily in the small farming communities of Cornville, Iowa and Wheatville, Kansas; but, alas, national sales did not rise. Was it common practice in your time for computer companies to advertise only in small communities?

ANSWER: Don't act so surprised, ATARI users - we all KNEW this would happen some day, didn't we?

Captain's Log

At present the clubs pace has continued to pick up with several projects going on at a time. The AW+ Patch sales have continued to come in quickly due to recent articles in both Computer Shopper & Antic. These are the result of submissions by Ben Martinik to the Magazines.

We are also presently supporting two local school districts (Wilson and Allentown) in their computer programs. We are looking for someone to take on the job of co-ordinating the efforts for these and other local schools.

The officers have obtained for the members a "Dealer Status" with Orion Micro Systems for the reduced cost of the new Express Carts. And we are now looking for other deals such as the new "BlackBox" interface (an MIO equivilent interface) in the future.

We presently have one official SIG and are looking for a meeting place at this time. There is also a few others forming in the wings which we hope to get started in the future.

With all the positive things happening with the club now I have to report that we still have a major failure in our plans. As of this time with four letters of various forms trying to get us registerd as an Atari Club we have still not heard from Atari Corp. This Point has become a personal target of Johnathan Mordosky to take on Atari Corporation through some of his backdoor contacts.

As workloads and projects increase I would like to thank all the members participating in getting these projects going. We hope to continue to bring members the deals, savings and Official information we have been getting as of late.

I would also like to ask members how we can help those who are restricted and unreachable due to distance, Work hours and personal commitment cannot make the monthly meetings. Also those members who are not tied into the BBS net for whatever reason!

Please let us know!

ALL recomendations will be considered!

Thanks

Ron Motley

------ AtariWriter Plus on a Hard Drive! ------

SpartaDOS ver. 2.3 or ver. 3.2 Compatible

LVAUG is now offering other Atari users the chance to use Craig Gaumer's (LVAUG Member) patch which allows you to patch your origional AtariWriter Plus disk in order to make it Compatible with Sparta Dos and have some added features that will enhance the power of this widely used word processor.

The added features are as follows:

1. Exit to SpartaDOS and return to AW+ without losing your working copy.

2. Exit to spartados and switch to another subdirectory, then upon returning, AW+ will use the current directory to which you just switched.

3. Exit to SpartaDos and AINIT a disk, RENAME, DELETE a file, or CREDIR (crete a directory). You may use any INTERNAL Dos command with the exception of Copy.

4. You can read directories of drives 1 through 8 directly from the AW+ menu (internal Ram Disks are supported)??

5. You may run AW+ from a ramdisk as D1: as well as from a hard drive ad D1:. The support programs along with main program may reside within a subdirectory to keep from cluttering up the root directory.

Easy to follow documentation is supplied on disk along with the patch. To get this useful patch fill out the order form, enclose a check or money order for $5 and send it to:

> LVAUG
>
> c/o AW+ PATCH
>
> P.O. Box 1307
>
> Allentown, PA.
>
> 18005-1307

Atariwriter Plus Patch

NAME_____

ADDRESS_____

CITY_____STATE_____ZIP_____

[_]CHECK [_]MONEY ORDER [_]CASH

Amt. Enclosed [_____]

Help!

As the summer approaches and everyone turns to their favorite summer pastime I realize that free time will reduce for everyone. I do ask that you think of the others in the club who have spent many hours working for you to improve the club service to it's members.

As time goes on we have begun to increase the amount of work needed to keep things going at their present pace. This increase is due to more projects being started to benefit you.

To beat the bushes for help seems to be one of my jobs which I find the least enjoyable but very necessary.

Some of the projects at this time can require as little as 2 or 3 hours a month. People are needed for the newsletter as writers, Public relations to try your hand at paper posters as well as graphic monitor displays touting the club. Some of it can even be fun! Give your time and check out the help wanted listing to see if you can help. You can even fill in your own job if you see one that can be done.

Wanted

Public relations person:

Someone to help with ideas to present the club to outside people. This would be in the form of posters handouts and Letters in local papers listing meetings.

Contact: Bonnie Strohl, secretary

Typists:

People to transfer paper articles to a data format for the newsletter editors

Contact: Editors

School Contact Person:

Anyone who would be interested as acting as liaison between the local schools and contacting other schools not yet on our contact list to offer our services.

Contact: Ron Motley

These are just a few of the Jobs we now have open for people. Everyone is needed to help in promoting the club in the local area and elsewhere you may run into other Atari users. If you are interested in any of these jobs let the contact people know.

Being A SysOp Or Not? (Part 2)

Bonnie L. Strohl (LVAUG)
Sysop: Wishing Well BBS

The last article that I wrote concerning a sysOps' point of view was concerning the outlook from my keyboard, as a day in general.

This issue I would like to gear towards the main problem the sysOps run into running PRO!

I guess that I should have taken the time out to talk to a few of those that have the program, but I feel that if I run into problems running the same Bbs as they do, then it would be safe for me to say that they are probably running into the same problems.

Everyone likes a Bbs that runs well all the time. But we all know that this is wishful thinking, and there are going to be times when not everything goes as planned. What users fail to realize at times is the fact that we sysOps are not the ones that made the program, so that means that we are not the ones that are totally at fault.

The complaints that pour into our E-mail bases are sometimes overwhelming. I know that there are those that like to know the reasons that our boards are down. But some of them take the less-than subtle approach to asking. Most of the time the results are just the sysOps being very sorry for the down-time, with hope that the newest upgrade is going to help solve the problem.

What the users fail to realize is that the Support Board for the PRO is constantly busy. There are times that I have left the modem ring to no end trying to get through. Then once you do get through, it seems that you wait forever for the questions asked there to be answered. So many sysOps out there are asking questions that go unanswered, and yet there is not much in the way of response due to the fact that we are asking more than what there is time for to be answered.

I will be quite honest with you. If it weren't for the simple availability of the other Express PRO sysOps to help answer these questions for us, they just might go unanswered. Thanks to the other sysOps encountering the same problems first, I would not have had half of my problems solved to suit the users on my board!

One good example is an upgraded version to a particular command or game file. With so many of the user-written materials, this is something that you have to be careful about. Putting an upgrade into your system is not the most pleasant experience. I have found that the best solution to this was just

letting the files alone if they were working right, rather than changing them and then having a problem with the replacement. I guess the one thing that bothers us the most is when you get another file that is replacing one that is full of bugs...then that replacement file is worse than the one before it!

All I ask is that I have a board that the users can enjoy and be glad that it is there. So many boards today are biting the dust, leaving users out there searching for another to replace them. If there is ever going to be an improvement to the world of Bbsing, I would hope that it would be a bug-free, non-busy system for all to enjoy! (Including the sysOps themselves).

Beginner's Corner 2

By John W. Dashner (LVAUG)

COMMUNICATION

In this issue will discuss Telecommunication terminology.

ASCII- Abbreviation for American Standard Code for Information Exchange.

ATASCII- Atari's version of ASCII, designed to handle their enhanced graphics capabilities.

BAUD- Transmission of data speed, measured in bits per second up to 2400 Baud. Higher speed is divided by 2400, ex. 4800 = 2 bits per baud, 9600 = 4 bits per baud.

BUFFER- Used to store information until slower device is ready to accept it, usually a printer or disk drive.

CARRIER- Continuous frequency capable of being varied with an information carrying signal.

CRC- Cyclic Redundancy Check, an error checking technique for transmission of data.

DIP SWITCH- A package or set of small switches used to configure settings of the modem to make it compatible with your computer and terminal program. Dip switches are also found on some printers.

DUPLEX- Most common are half and full. When communicating with a BBS, use full. When communicating with another computer use half. If you press keys and nothing appears on your screen or you see ddoouubbllee of every key pressed, you are in the wrong duplex.

HAYES COMPATIBLE- Your modem is equivelant to the standard of the industry.

INTERFACE MODULE- A transition device placed between your computer and modem and/or printer. It converts from Atari pin configuration to RS232 standard, or Centronics ports.

MACRO- Pre selected string of characters, sent over your modem by pressing 1 or 2 keys, usually a name, password etc.

MODEM- MOdulator DEModulator, plugs into phone system for use in data transmission.

PROTOCOL- Ground rules used in transmission of data.

RS232- 25 pin connector, common standard for serial connection.

TERMINAL PROGRAM- Software used to operate a modem with your computer.

These are a few of the many descriptions used in communicating by way of modem and computer. If you have any questions about modems or terminal programs, feel free to ask almost any member of your user group. If that person can't help you, he may be able to direct you to the right person. That is why we have the user groups and meetings.

If you would like to see something covered in this column, contact one of the editors, we will be glad to help you. You can also contribute to this column.

Till next time

Keep MOdulating DEModulating.

| The |
| SpartaDos |
| Tutorials |

by: Michael C. Stoliker (LVAUG)

Part Five: Disk Structure

Foreword:

Hello again! I know I promised to get into programming for SpartaDOS by this installment, but as is usual something came up that distracted me from my immediate goals. The side- track involved the need to recover data from a bombed SpartDOS disk and therefore required some research into the structure of the SpartaDOS disk format.

Although a disk crash may not seem to be a fortunate event, in this case the information that was un- covered in the disk's recovery has led to a better understanding of the nature and capabilities of SpartaDOS and uncovered some gross under-estimates or outright mistakes in my previous articles. I am

happy to report that all the lost data has been recovered and I feel that if nothing else comes from this exer- cise,we should at least be seeing some disk editors in the near future that understand SpartaDOS.

With that out of the way, I would just like to add my thanks to Jim Finley, Ed Bachman and all the other L.V.A.U.G. members who have been spending long hours on the phone helping me sort things out. Also, I would like to add a special thanks to my wife, Kathy Kostelnick, who has put up with so much through this series of articles.

-Mike

BASIC TRAINING

I have stated before that all the information needed to understand SpartaDOS is available in the manual. The only problem with the manual is that very little is done to present that information simply and clearly! Since the point of these articles is to rectify that mistake, I want to start with the very basics.

The biggest selling point of SpartaDOS is it's double density capabilities, and since most users tend to make use of this relatively new (for ATARIs) format we will stick mostly to examples of double density disks. In SpartaDOS, single density disks have the same structure as the double density variety with the exception of the sector size so most of the following information will still apply. I will try to make note of any differences.

In SpartaDOS there are four dis- tinct types of sectors. Since these different types of sectors are used for different purposes, it is impor- tant to understand how they are used and how to recognize them. The four types are:

1) Boot Sectors

2) Bit Maps

3) Sector Maps

4) Data Sectors

of the four main types, only the Data Sector can be subdivided furthur. The sub-classes of the Data Sector are:

a. Directory Sectors

b. User Data Sectors

Each of these types will be dis- cussed in their own section or sub- section. But before we can do that certain conventions must be estab- lished to be sure that we understand each other. The first of these con- ventions is the use of hexidecimal numbers as most disk scanner/editors use hex anyway. For those

of you not familair with the hexidecimal numbering system, the short explain- ation is that hexidecimal (hereafter refered to as 'hex') numbers are the digits 1-9 and the letters A-F. This is a base 16 numbering system and the letters A-F are used to refer to the numbers 10 through 15. At 16, we move one space to the left and start again at one. ie.

00=0, 01=1, 02=2.... 0F=15, 10=16

The reason for using hex is that large numbers may be compactly represented as is easily shown by the fact that the hex number FFFF is equal to 65535 in decimal. For more information on hex number conversion, see appendix H of "YOUR ATARI COMPUTER" by Lon Poole, etc.

The second convention is that all numbers larger the 255 (FF hex) will be assumed to be in the Least Sig- nificant Byte/Most Significant Byte (LSB/MSB) storage format. This means that when viewing information on the disk with a conventional disk scan/ edit program the sequential bytes- FF 03 -would be read as 03FF. Also, any numbers Larger than 65535 (FFFF) will be stored LSB/Next Significant Byte/MSB. Therefore...

LSB NSB MSB

1F   03   01

... is read as: 01031F

The last convention is that when we are are speaking of individual bits within a byte, they will be numbered in decreasing order of significance from left to right. The most significant bit will be 7 and the least will be 0.

ie...

msb   lsb

!7!6!5!4!3!2!1!0!

Note: To differentiate Byte significance from bit significance the abbreviations LSB/MSB will be cap- italized for bytes and lower case for bits.

And now, on with the show...

BOOT CAMP

Boot Sectors are the most interesting sectors on a SpartaDOS disk. These sectors are unique in that they are always in single density even on a double density disk. The reason for this has to do with their func- tion. Since these are the first sectors the drive (and the computer) reads when the computer is first

turned on, they MUST be in single density since the computer does not automatically recognize a double density disk. These first three sectors of any SpartaDOS disk con- tain everything DOS needs to know about the disk plus a 'Boot Strap Loader Program' which has the cap- ability to read disks in double density and whose main purpose is to load the DOS and get it running.

The 'Boot Strap Loader' although important is of less interest to us than the other information contained in these sectors. I will not attempt to describe it's function further, but will go into detail on the rest of the information. Our primary area of interest begins at byte 10 in the first sector and ends at byte 43. (In this case the numbers are decimal, and instead of using an offset as in the manual, I assume the first byte to be 1. [So offset +9 in the manual becomes 10.]) The following is an explaination of the information in this format:

Byte#   Short Description   # of bytes

Full Description

Example (If needed)

- -

[10] MAIN DIRECTORY SECTOR MAP (2)

This is the pointer to the first sector map of the MAIN directory. The two bytes are combined as lo-byte hi-byte and give the actual sector number which contains the map. (See the section on Sector Maps for more info.

05 00 = sector #5

- -

[12] TOTAL # OF SECTORS (2)

This two-byte number contains the actual number of sectors on the disk. This can indicate up to 65535 sectors or 16 megabytes (65535 sectors X 256 bytes).

D0 02 = 02D0 (720) sectors

- -

[14] FREE SECTORS (2)

This shows the number of sectors still available for use on the disk.

- -

[16] # OF BITMAP SECTORS (1)

This single byte shows the number of Bitmap Sectors used on the disk. (Typically 1) Bitmap sectors are used to show which sectors are in use by turning the bit corresponding to a used sector OFF (0). Although the average double density disk needs only one sector to map a whole disk, single density, double sided, and hard disks may need more. We will go into more detail in the Bitmap section of this article.

- -

[17] FIRST BITMAP SECTOR (2)

This is a two byte pointer to the location of the Bitmap sector. It is also read as lo-byte/hi-byte.

04 00 = sector #4

- -

[19] FIRST FREE DATA SECTOR (2)

This is the pointer to the sector that DOS will use for the next new file or file update. The manual indicates that DOS first checks to see if the sector is actually free.

- -

[21] 1ST FREE DIRECTORY SECTOR (2)

This is the pointer to the next available sector for directory use. This will be the next sector used by DOS to create a new directory or expand an old one.

- -

[23] DISKETTE VOLUME NAME (8)

This is where DOS stores the disks unique volume name. Eight characters are reserved for this purpose and if they are not all used the extra space is padded with blanks. The CHVOL command operates on these bytes.

- -

[31] # OF TRACKS/SIDES (1)

This is where DOS finds the info on a disks tracks and sides. If the msb (bit 7) is set (1) then this is a double sided disk. If the byte's value is less then 128 then the disk is single sided and the byte value simply indicates the number of tracks. If the byte's value is greater than 128 then the disk is double sided and the number of tracks is equal to the byte value minus 128.

- -

[32] SECTOR SIZE (1)

This byte contains the disk's sector size. A value of 128 equals single density (128 bytes/sector). A value of 0 equals double density (256 bytes/sector).

- -

[33] MAJOR REVISION # (1)

?? This byte holds the major revision number of the DOS the disk was formatted under. A decimal value of 17 (11 hex) means version 1.x Sparta- DOS, and a value of 32 (20 hex) means version 2.x or later. NOTE: version 3.x disks will also produce a 20 hex here.

- -

[34] # OF BUFFERS FOR DOS (1)

Version 1.x disks only

----

[35] DEFAULT DRIVE # (1)

This location contains the number I.D. for the drive which will become the default drive if this disk is booted (normally 1).

----

[36] & [37] RESERVED BYTES (2)

----

[38] # OF MAIN BOOT SECTORS (1)

Version 1.x disks only

----

[39] VOLUME SEQUENCE NUMBER (1)

This byte contains a value which is used by DOS in conjunction with the following byte to determine if the disk has been changed. This allows DOS to differentiate between two disks with the same name. The following byte value is picked at random when the disk is formatted. This byte however is incremented every time the disk is updated.

----

[40] VOLUME RANDOM NUMBER (1)

See above for information. This byte's and the previous byte's value may be examined with the CHKDSK utility.

----

[41] 1ST SECTOR MAP OF BOOT (2)

These two bytes are a pointer to the designated 'BOOT' file for this disk (normally DOS). These bytes can be changed with the 'BOOT' com- mand under SpartaDOS 2.x and later to allow a file other than DOS to be the BOOT program.

----

[43] WRITE LOCK FLAG (1)

This byte holds the disk lock status. A value of 0 here means that the disk is not locked. A value of 255 (FF hex) indicates that the disk write lock is on and that the disk may not be written to until the UNLOCK Dx: command is given. This disk write lock will not inhibit formatting the disk. This is found on a version 2.x or greater disk only.

MAPPING THE TERRAIN

In this section we will look into the Bit Map Sector(s) and their structure. The Bit Map Sectors (BMS) on a SpartaDOS disk serve the same purpose as the Volume Table Of Contents (VTOC) on an Atari DOS disk. They represent a map of sector useage for the entire disk. The BMS does this by assigning a bit of each byte in the sector map to a physical sector on the disk. The first byte in the sector map corresponds to sectors 0-7, the next byte cor- responds to sectors 8-15 and so on, for every sector on the disk. (NOTE: sector 0 does not exist.) The sector indicated by an individual bit is in use if the the bit is OFF (0). If the bit is ON (1) the sector is free. With this in mind we can assume that If the byte value is 00 then all the sectors associated with that byte are in use. If the byte value is FF then all the sectors associated with that byte are free. Other combinations of used/free sectors can have any value between 00 and FF. The structure of an individual byte in the bit map can be diagramed as follows:

```
        BYTE VALUE = FF
              /    \
BIT MAP = msb>1111  1111<lsb
              ^      ^
              |      |
          low # sector   hi # sector
           (free)        (free)
```

```
        BYTE VALUE = 3F
              /  \
BIT MAP = msb>0011 1111<lsb
              ^    ^
              |    |
          low # sector  hi # sector
           (in use)      (free)
```

Bit Map Sectors must not be con- fused with Sector Maps. The first maps the whole disk with each bit in every byte corresponding to an actual sector on the disk. The latter is usually associated with either a data file or directory file and will be discussed in detail later. If more than one Bit Map Sector is needed to map the disk, they will be stored sequentially on the disk. To clarify this, if the '# OF BIT MAP SECTORS' byte in the boot sector is greater than 1 and the 'FIRST BIT MAP SECTOR' pointer is 4 then the second bit map sector will be in sector 5 and so on.

EXPRESS!
CARTRIDGE OFFER

The Lehigh Valley Atari Users Group has become a dealer for Keith Ledbetter's and Chris Kings new Express Cartridge.

The L.V.A.U.G. will sell the new Carts at $58.00 for members and $60.00 for non members.

Listed below are some of the many highlights of the Express! cartridge,

* * * * * * * * * * * * * Express! Features * * * * * * * * * * * * *

o Supports any available DOS, including the SpartaDOS X cartridge.

o Intelligent and intuitive drop-down menu system, modeled after those that are so popular on IBM PC's. Those of you who have used Turbo Pascal or Turbo C on an IBM will feel right at home!

o Supports extra memory in either the 130XE or upgraded 800XL's, allowing you to have a 90K capture buffer. Now you no longer have to be content with wimpy, 5K capture buffers!

o Internal SpartaDOS-type DOS shell allows quick access to the most commonly used DOS commands such as erase, rename, dir, type, and wildcard copy. Fully supports all subdirectory commands when used with SpartaDOS.

o Full screen (Action-like) text editor allows you to edit captured text or compose a message without having to run an external text processor.

o Supports ANY modem which has a corresponding 'R:' handler.

o Works on the Atari 800, 800XL, 130XE, and the XE game machine.

o Fully supports the XEP-80 80 column card when using SpartaDOS X. By FULLY we mean FULLY! There is a seperate, 80-column menu invoked when you are using the XEP-80. You no longer need to have two monitors hooked up. NOTE: XEP-80 support REQUIRES SpartaDOS X.

o Supports 300 / 1200 / 2400 / 4800 / 9600 baud rates.

o Express's new high-speed screen handler makes capturing text at the higher baud rates (4800 and 9600) a breeze. No more lost characters while capturing text!

o Supports R1: thru R4: communication ports (great for null modeming).

o Supports Xmodem, Xmodem-CRC, Xmodem-1k (Ymodem), Ymodem Batch, Ascii and external windowed transfer protocals.

o Allows running of external, disk-based programs. This means users can write utilities, such as additional transfer protocals, to run with the cartridge (just like the Express Professional BBS system).

o Supports exiting to DOS without loss of carrier. This allows you to exit the cartridge and run any program, such as ARC, while remaining online.

o Supports the Hayes extended modem command set (ie: "BUSY") allowing for quick re-dial of busy numbers.

o Supports 50 phone list entries. Each entry has settings for baud rate, parity, duplex, wait time, translation, and 3 macros. These macros can contain control characters, making it possible to log on with just one keypress! For example,

"John Doe^M^Ppassword^M"

would output "John Doe" ‹return›, pause 3 seconds, then output "password" ‹return›.

o There are 7 "generic" macros that are always active, regardless of the current dialing entry that is active.

Send order to :

L.V.A.U.G.-Express Cart

P.O.Box 1307

Allentown Pa. 18105-1307

Be sure to include the following

Name_____

Address_____

City_____ ST_____ Zip _____

Cost Members $58.00 Non-Members $60.00

For Mail delivery include 4.00 for Postage and handling.

_____

For Sale:

Atari 1030 Direct Connect 300 Modem. Software included. $25 Call Ron Motley at 433-6685 or contact me via one of the LVAUG affiliated BBS's.

Attention:

SOFTWARE BAR-B-QUE

at John Douglas' place

BRING YOUR OWN DISKS TO ROAST

Contact Ron Motley for details!

Technitron

We all know the many uses of the many uses of the 8-Bit Atari. Some are quite commercial and others are just for fun, but it seems that since the release of the XE Game System, all people think the Atari 8-bit is good for is games and that's it's limit.

It's true that some of the 8-bit line of Atari computers are used for the sole purpose of playing games; mine of course gets a good share of games with the family practically standing in line to get their shot at one of those alien creatures. But still our Atari PC gets time to show off with quality word processing,extensive graphics, and some homebrew programming. These are the conventional uses for most computers.

Along with the most popular uses we also use our 800 XL to keep track of our records from A to Z (phone numbers and personal checks ect.), but even after applying our XL to these tasks I wasn't satisified.

Here's where we decided to really put the old 8-bit to work. Since we wanted to justify the cost of all peripherals we accumulated, something had to be done. Thus Technitron was born. Through Technitron we decided not only to start a computer group we also wanted to support the computer we were using. A unique twist came about, we designed a replacement power supply with battery back-up for the XL/XE series of Atari. After using the prototype in BBS conditions to be sure of it'S performance (THE KEEP 717-675-4068), we created a publication of four pages telling how the average Atari user could build a smaller unit of their own with little effort and cost.

Then came the time to let the faithful 6502 Atarians know of our power supply with battery back-up. We wrote a few letters amd called a few BBS systems uploading a review file. To our surprise letters came from all across the country. All of which wished to purchase our plans for the cost of $3.00 which covers printing and postage.

Just a note recently Technitron has modified the Battery back-up plans to now include the MIO from ICD corp.

As of this date we're still receiving response from avid users requesting our plans and continued support of the 8-bit line. This has given us the needed inspiration to start several other projects in the battery back-up line to support other Atari peripherals.

Now I would like to take a moment to tell you about the power supply plans. These plans use Radio Shack Parts and list the needed part numbers. There are however two parts which must be obtained from your local electronics wholesaler. They are three mica insulators and a 7-pin Din plug (one from a old power supply works fine). Since the stock power supply has an output of 1.5 amps it often gives out under stress, especially, if like many Atari users, their machine is upgraded to 256k or even 576k. The extra memory chips mean more power consumption. Then there's the added draw from modems and interfaces. Our unit will support up to 3amps draw. Also it is designed to resist power surges and filter out interference. Both the Input of the AC line and the output of the DC current are fused to protect not only your computer but also your home from an electrical hazard. With the added current availability the users can upgrade their system to the maximum. Also with the battery back-up feature no memory is lost due to power failure. Included in the plans are a full step by step procedure and Schematic. We have also added a page with diagrans on construction techniques.

Our publication is designed with the dependable 800 XL and printed out through the use of various software (AtariWriter Plus, Artist Unleashed, Circuit Database II). It's truly a joy to not only support the computer you use, but it's even more refreshing to come in contact with the Atari owners who continue to be loyal to their machines.

If this story has a lesson to be learned it is to not give up on that Atari 8-bit. It is alive and well and don't let anyone or any magazine convince you that it is on it's way out. L.V.A.U.G. is on an up-swing and new users are now surfacing. I found them and I'm sure there are others who are looking also. From the letters we received through Technitron there are many 8-bit Atarian's throughout the U.S. and Canada. Let's do something (anything) to keep the 8-bit user group alive and our computers. Join a user group, write an article, or submit your tips or programs to Public Domain.

Technitron / William Culver

P.O. Box 1033

Wilkes-Barre, Pa 18702

Sound Programming:
A Starting Point
by James D. Craig (LVAUG)

It's been a long time since I began writing articles on synthesizers and computers. I've assumed a following readership, and too often assumed understanding based on that following. When an LVAUG member told me recently that I was talking "over his head" in some of my pieces, I can only assume the fault is mine and try to start afresh.

Hi. My name's Jim, and I'm a professional music teacher, composer, performer, and technician. I'll be 45 this year, and have been performing professionally since age 13. I've been

tinkering with acoustics and electronics for as long as I can remember. The chances of my meeting most of you in the flesh are slim, but this monologue can be turned into a dialogue if you simply respond c/o this newsletter or by BBS (JAMES CRAIG on Warehouse 432-3679, NITEHAWK on LVCG BBS 759-1376, and Allentown RCP/M 432-5699).

In these pages, my primary topic will be ElectroMusic, a term I defined some years ago to mean any music that employs electronics in its production or storage. This issue's focus will be on musical instruments that have an organ-like keyboard.

Not too long ago, pianos and pipe organs were almost alone in sporting that keyboard - a pattern of 7 white and 5 black keys that repeats from end to end. Faced with a properly maintained instrument, the experienced musician knows what will happen when he presses any particular key or pedal. One could almost say that these instruments have become standardized. The piano plays 88 notes of predetermined pitch, and "stops" with the same name (such as "8 foot flute") produce basically the same effect on different organs.

We should also mention the clavichord and harpsichord. The clavichord has its strings struck by metal tangents, and the harpsichord's strings are plucked. But again, craftsmen and musicians have evolved standards easily learned and employed on many instruments.

In an effort to reduce cost, size, and weight, electrically powered instruments were invented. And many electric pianos and organs maintained the old standards. You might notice a white, red, and yellow color coding on the stops of an electric organ: These represent the kinds of pipes used to produce different timbres. Now they are also used to represent the sounds made by those particular pipe groups.

Today, what is confusing to many potential buyers of keyboard instruments is the use of the name "piano" or "organ" for an instrument or in its tone bank listing. These instruments are often synthesizers which produce a limited number of sounds no matter how many keys are pressed: One speaks of a "monophonic (1 voice)" synth, or an "8 voice polyphonic" synth. The acoustic piano and organ can play all of its notes at once. This may seem a wasteful situation, and it is generally cheaper to produce an electronic instrument with less voices than more. But the acoustic piano has the ability to resonate throughout itself, and that's a complex and wonderful process.

Another quality of the piano is often copied in electronic simulation - velocity sensitivity. The speed of the piano's keystroke from top to bottom creates different dynamics and timbres on each key. Many synths and samplers also include "aftertouch" - the ability to create additional effects by using finger pressure at the keystroke's bottom. The only acoustic keyboard that can do this is the clavichord, which can produce a vibrato (bebung) with oscillating pressure. (Anybody have a Hohner Clavinet they want to sell me?)

One of the fringe benefits of the digital explosion was the discovery of certain formulae that can transform the outputs of simple circuits into very complex waveforms which sometimes sound "just like a piano" or "just like a saxophone". In fact, these two acoustic instruments remain among the most difficult to simulate. Why not simply do a digital recording of these instruments, then play them back at different pitches cued from a controlling keyboard? Many modern keyboards do just that. When they allow you to do the recording, they're usually called "samplers" or "sampling keyboards". A "multi-timbral" keyboard is one that allows more than one tone to be produced by the instrument simultaneously. And even many very inexpensive synths use sampled sounds to improve the simulation.

So is the sampler a perfect reproducer of these sounds? No. There are too many variables. A good sax player might play his lowest "C" hundreds of different ways in performance, each dependent on the musical context. What, besides a live musician, can handle so many quick decisions? A random or pseudo-randomizing factor might aid in the simulation. Or a computer could be used.

But that's another story, to be touched on in the next piece on CONTROLLERS - next issue.?

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